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10/849,729	05/20/2004	Thomas E. Tiwald		8650

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EXAMINER

CHARIOUI, MOHAMED

ART UNIT PAPER NUMBER

2857

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/849,729

Applicant(s)

TIWALD, THOMAS E.

Examiner

Mohamed Charioui

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 May 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Examiner notes that in page 56, line 7, "\*\*\*\*\*" is inserted. Applicant should delete "\*\*\*\*\*" to avoid future confusions.

### ***Drawings***

2. The drawings are objected to because Figures 1-4e, 5 and 6 are not marked as prior art. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The disclosure is objected to because of the following informalities: throughout the specification, change "segement" to -segment—and change "segements" to -segmenst--.

Appropriate correction is required.

***Claim Objections***

4. Throughout the claims, change "segement" to -segment—and change "segements" to -segmenst--.

**Claims 1-3** are objected to because of the following informalities:

Claim 1, recites "said respective segment" in page 47, lines 15-16. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

**Claims 4-14** are objected to because of the following informalities:

In page 48, line 12, the term "practicing steps a and b in either order" would create lack antecedent problems in the claim, if step b would precede step a.

In page 50, lines 1-4, it is not clear whether the limitation "such that at each wavelength over the determined range of wavelengths the sum of the contributions of each evaluated (K-K) consistent oscillator approximates the magnitude of the imaginary part of the dielectric function" is part of step e limitation or not.

Claim 4 recites the limitation "sum of  $(n + 0.5)$ " in page 48, last line. There is insufficient antecedent basis for this limitation in the claim, because "n" was never defined.

Claim 10 recites "the "N" (K-K) consistent oscillator" in page 51, line 10. There is insufficient antecedent basis for this limitation in the claim.

Claim 11, recites "the just prior (n-1) (K-K) consistent oscillator peaks" in page 51, line 28. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

**Claims 15-26** are objected to because of the following informalities:

In page 52, line 10, the term "practicing steps a and b in either order" would create lack antecedent problems in the claim, if step b would precede step a.

Claim 15 recites the limitation "said n wavelength range segments" in page 52, second line in step c). There is insufficient antecedent basis for this limitation in the claim, it should be --said n wavelength range segment lengths--.

Claim 15, recites "the just prior (K-K) consistent oscillator peaks" in page 53, second line in step e). There is insufficient antecedent basis for this limitation in the claim.

In page 54, lines 1-4, it is not clear whether the limitation "such that at each wavelength over the determined range of wavelengths the sum of the contributions of each evaluated (K-K) consistent oscillator approximates the magnitude of the imaginary part of the dielectric function" is part of step e limitation or not.

In page 53, line 12, change "ends the second" to --ends at the second--.

Claim 16, recites "the lower wavelength" in page 54, line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim 17, recites "the lower wavelength" in page 54, line 17. There is insufficient antecedent basis for this limitation in the claim.

Claim 21 recites "the "N" (K-K) consistent oscillator" in page 55, line 11. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

**Claims 26-31, 38 and 40**, are objected to because of the following informalities:

In page 56, line 13, the term "practicing steps a and b in either order" would create lack antecedent problems in the claim, if step b would precede step a.

In page 56, lines 2-3 of step b, change "the thickness of the transparent thin film" to --the transparent thin film thickness--.

Claim 26 recites "(n) wavelength range segments" in page 57, line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 27, recites "the lower wavelength" in page 57, line 28. There is insufficient antecedent basis for this limitation in the claim.

Claim 28, recites "the lower wavelength" in page 58, lines 4-5. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

**Claims 32-37, 39 and 41**, are objected to because of the following informalities:

In page 58, line 29, the term "practicing steps a and b in either order" would create lack antecedent problems in the claim, if step b would precede step a.

In page 60, lines 5-8, it is not clear whether the limitation "such that at each wavelength over the determined range of wavelengths the sum of the contributions of

each evaluated (K-K) consistent oscillator approximates the magnitude of the imaginary part of the dielectric function" is part of step e limitation or not.

Claim 33, recites "the lower wavelength" in page 60, line 11. There is insufficient antecedent basis for this limitation in the claim.

Claim 34, recites "the lower wavelength" in page 60, lines 20-21. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 1-3** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites in page 47, line 21, "also the real part of said dielectric function", it is not clear from the claim whether the real part of said dielectric function is also approximated using (K-K) consistency or not. Therefore claims 1-4 are considered indefinite.

**Claims 4-14** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites in page 48, lines 14-16, "providing experimentally obtained data for real and imaginary parts of the dielectric function vs. wavelength for a sample", it is

not clear from the claim how the obtained data for real and imaginary parts of the dielectric function are related to the wavelength for a sample. Therefore claims 4-14 are considered indefinite.

**Claim 11** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites in page 51, line 22, "the sum of all the resulting  $(n + 1/20)$  segment lengths", since there are only  $n$  segment lengths, it is not clear from the claim whether the  $1/2$  segment length is the  $1/2$  segment length of one of the segments 1 to  $n$  or is the  $1/2$  segment length of an  $(n+1)$  segment. Therefore claim 11 is considered indefinite.

Claim 11 recites in page 51, lines 19-20, "along with other (K-K) consistent oscillator parameters", it is not clear from the claim what other (K-K) consistent oscillator parameters the claim is referring to. Therefore claim 11 is considered indefinite.

Also the limitation "that for the  $(2^{nd} - n^{th})$  (K-K) consistent oscillator each successive (K-K) consistent oscillator begins at a wavelength at which the Just prior  $(n - 1)$  (K-K) consistent oscillator peaks" is unclear.

**Claims 15-25** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 recites in page 52, lines 13-14, "providing experimentally obtained data for real and imaginary parts of the dielectric function vs. wavelength for a sample", it is



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not clear from the claim how the obtained data for real and imaginary parts of the dielectric function are related to the wavelength for a sample. Therefore claims 15-25 are considered indefinite.

**Claim 22** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22 recites in page 55, lines 23-25, "the sum of all the resulting segment lengths plus half the last one", it is not clear from the claim whether the last one refers to the nth segment or not. Therefore claim 22 is considered indefinite.

Claim 22 recites in page 55, lines 20-21, "along with other (K-K) consistent oscillator parameters", it is not clear from the claim what other (K-K) consistent oscillator parameters the claim is referring to. Therefore claim 22 is considered indefinite.

Also the limitation "that for the (2nd - nth) (K-K) consistent oscillator each successive (K-K) consistent oscillator begins at a wavelength at which the Just prior (n - 1) (K-K) consistent oscillator peaks" is unclear.

**Claims 26-31, 38 and 40** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 26 recites in page 56, lines 16-17, "providing experimentally obtained data for real and imaginary parts of the dielectric function vs. wavelength for a sample", it is not clear from the claim how the obtained data for real and imaginary parts of the

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dielectric function are related to the wavelength for a sample. Therefore claims 26-31, 38 and 40 are considered indefinite.

**Claims 32-37, 39 and 41** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 32 recites in page 56, lines 32-33, "providing experimentally obtained data for real and imaginary parts of the dielectric function vs. wavelength for a sample", it is not clear from the claim how the obtained data for real and imaginary parts of the dielectric function are related to the wavelength for a sample. Therefore claims 32-37, 39 and 41 are considered indefinite.

Also in page 59, lines 23-25, the limitation "for each of the remaining ( $n - 1$ ) wavelength range segments, on either side of the central peak of the first (K-K) consistent oscillator" is unclear.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-3** are rejected under 35 U.S.C. 102(b) as being anticipated by Herznger et al. (U.S. 5,796,983).

Herznger et al. teach providing an imaginary part of a dielectric function over spectroscopic range, and dividing the spectroscopic range into a plurality of segments

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(see col. 4, line 60 to col. 5, line 35); fitting each segment in the spectroscopic range with an approximating K-K consistent oscillator structure, the approximating oscillator structure in each segment beginning and ending at the start and end of respective segment such that a summation of contributions from the oscillator structures present at each point within the spectroscopic range approximates the imaginary part of the dielectric function, and via Kramers-Kronig (K-K) consistency, also the real part of the dielectric function (see col. 7, lines 23-50 and col. 9, lines 10-35).

#### **Prior art**

7. The prior art made record and not relied upon is considered pertinent to applicant's disclosure:

**Kadowaki ['873]** discloses processor apparatus and integrated circuit employing prefetching and predecoding.

**Forouhi et al. [170]** disclose method and apparatus of determining optical constants of amorphous semiconductors and dielectrics.

**Morrisson et al. ['433]** disclose method and apparatus for monitoring layer processing.

**Horie ['095]** discloses method of measuring dielectric constant using light in a plurality of wavelength ranges.

**Rosenthal et al. ['872]** disclose method and apparatus for measuring the composition and other properties of thin films utilizing infrared radiation.

**Lee et al. ['845]** disclose optical devices with engineered nonlinear naocomposite materials.

#### **Contact information**


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohamed Charioui whose telephone number is (571) 272-2213. The examiner can normally be reached Monday through Friday, from 9 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mohamed Charioui

7/7/05

  
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